REMARKS

Applicant has carefully considered the Examiner's Office Action and has amended the claims responsively to define the invention in clearer form and to distinguish patentably from the prior art.

Applicant has also amended the specification to provide for the required section headings and to avoid reference to specific claim numbers.

The specification has been also amended to include brief descriptions of Figures 5 to 7 for the new drawing figures that are required by the Examiner.

Page 5 of the specification has been amended, moreover, to provide for antecedent of the basis for the elements shown in Figures 5 to 7.

Applicant is submitting the required "version with markings to show the changes that have been made," for both the specification and the claims.

The claims have been amended to include the subject matter and limitations that are not to be found in the prior art.

In amending claim 1, the added material to this claim is not new matter, since support for this added material is recited in the specification on page 2, lines 11-17. At the same time, this added material to claim 1 is not to be found in the prior art.

Applicant is submitting sketches identified as Figures 5 to 7 for the purpose of showing the subject matter of claims 8 and 9, as required by the Examiner.

As noted supra, the specification has been amended to provide for a reference to these Figures 5-7.

Claims 15 and 16 are included to avoid alternative language that was present in the original claim 14.

Claim 17 is also being submitted for consideration by the Examiner.

The claims have been amended, moreover, to avoid the objections raised by the Examiner under 35 U.S.C. 112, second paragraph. It is believed that with the present amendments to the claims, they meet these provisions of 35 U.S.C. 112.

In considering applicant's invention in relation to the prior art, the reference patent to Beck (5,547,050) discloses a shock absorber valve for a hydraulic telescoping strut absorber having a valve body with passages running there through. Openings at the outlet-side of these passages are covered by ring-shaped disks which are fastened and axially braced. The aim of this reference is to provide a fully automated assembly with short cycle times in which a valve closing force is independent of tolerances, and generates minimum chips from cutting and machining in the manufacture. The valve disks and the valve body are fastened onto a cylindrical component with a fastening element that is detachably fixed in the cylindrical component.

It is submitted that this reference patent to Beck does not at all disclose applicant's arrangement in which cup springs adjust independently for both compression and suction phases, and that they rest against the body and are in alignment therewith. Also not anticipated in this reference is that the body deforms resiliently and plasticly, and varies hydraulic impedances of the compression and suction phases. Also the present invention provides for having a characteristic curve that is adjustable in both the compression and suction phases.

It is submitted, therefore, that the claims in the application do not read on this reference patent to Beck.

The reference patent to Morgan (3,827,538) discloses a remotely controlled variable fluid shock absorber which is operated in response to changes in static pressure of a variable spring system. Piston components of the shock absorber are secured together by end crimping of a tubular outer bearing sleeve. A control is provided for infinitely varying a pre-

selected ratio of flow of working fluid through the passages of pistons used in damping device cylinders.

This reference patent to Morgan is entirely unrelated to applicant's shock absorber as described above in relation to the patent to Beck. There are no common features between this reference patent to Morgan and applicant's invention. Other than the title "Shock Absorbers" in the title of the reference patent to Morgan, there is no correspondence to the construction or objects of applicant's invention.

The claims in the application also do not read on the reference patent to Rauert (4,830,152) in which a shock absorber piston body is mounted in a piston shaft and this body has two faces on which a circumferential chamber is provided. These chambers are covered by a valve disk which rests on circumferential shoulders around the circumferential chambers. Counter flow channels in the piston body lead from the circumferential chamber on one face to an opening outside the circumferential shoulder on the opposite face. A flattened zone is provided outside of the circumferential shoulder with the aim to produce a degressive response to shock as speed increases. The flattened zone has transit channels covering the body except for radial partitions between the channels. These transit channels extend from radially narrow circumferentially elongated arc-shaped slots to circumferentially-short or radially broad trapezoidal openings into the circumferential chambers.

Considering the description provided in this reference patent to Rauert, it is clear that the claims present in the application do not read upon this reference.

The Examiner has applied the reference patent to May (5,259,294) for disclosing elevations and depressions on a piston. Applicant, however, does not claim such means per se. Applicant claims such means only in combination with all of the other structure and limitations as defined in the amended claims. Consequently, this reference patent to May has no

material bearing on applicant's invention, and it does not anticipate the novel features of applicant's arrangement.

Accordingly, even when the reference patent to May is combined with the reference patent to Rauert, it is still not possible to arrive at applicant's invention.

It is submitted that applicant provides for a new and marked improvement over the prior art.

Since the claims in the application define clearly the differences between applicant's invention and the prior art, it is believed that the claims should be found allowable.

Thus, none of the references when considered either individually or in combination provide for cup springs that are independently adjustable in their tensions for both compression and suction phases. The prior art references do not disclose that the tensions in the springs are adjusted by deforming the piston body resiliently or plasticly against a contact surface of the piston body for varying hydraulic impedances of the compression and suction phases. Unlike the prior art, the piston in applicant's invention has a characteristic curve adjustable in both the compression and suction phases.

Accordingly, the claims in the application do not read upon the prior art.

The Examiner's attention is respectfully directed to the Court decision in the case of In re Bisley (94 U.S.P.Q. 80, 86), in which the Court ruled that patentability is gauged not only by the extent or simplicity of physical changes, but also by the perception of the necessity or desirability of making such changes to produce a new result. When viewed after disclosure, the changes may seem simple and such as should have been obvious to those in the field. However, this does not necessarily negate invention or patentability. The conception of a new and useful improvement must be considered along with the actual means of achieving it in determining the presence or absence of invention. The discovery of a problem calling for an

improvement is often a very essential element in an invention correcting such a problem. Though the problem, once realized, may be solved by use of old and known elements, this does not necessarily negate patentability.

Furthermore, in the case of ex parte Chicago Rawhide Manufacturing Company (226 U.S.P.Q. 438), the Patent Office Board of Appeals ruled that the mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal, is not by itself, sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device. The Examiner has not presented any evidence to support the conclusion that a worker in this art would have had any motivation to make the necessary changes in the reference device to render the here-claimed device unpatentable.

With respect to combining the references, as the Examiner has done, the court decided in the case of The Standard Oil Company vs. American Cyanamid Company (227 U.S.P.Q. 293), that the issue of obviousness is determined entirely with reference to a hypothetical person having ordinary skill in the art. It is only that hypothetical person who is presumed to be aware of all the pertinent prior art. The actual inventor's skill is irrelevant to the inquiry, and this is for a very important reason. The statutory emphasis is on a person of ordinary skill. Inventor's, as a class, according to the concepts underlying the constitution and the statutes that have created the patent system, possess something that sets them apart from the workers of ordinary skill, and one should not go about determining obviousness under 35 U.S.C. 103 by inquiring into what patentees (i.e., inventors) would have known or would likely have done, faced with the revelation of references. A person of ordinary skill in the art is also presumed to be one

who thinks along the line of conventional wisdom in the art and is not one who undertakes to innovate, whether by patient, and often expensive systematic research or by extraordinary insight; it makes no difference which.

Also, in the case of Uniroyal Inc. versus Rudkin-Wiley Corporation (5 U.S.P.Q.2d 1434), the Court ruled that when prior art references require a selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Something in the prior art as a whole must suggest the desirability, and thus the obviousness of making the combination.

The preceding decision is reinforced by In re Dow Chemical Company (5 U.S.P.Q.2d 1529), in which the court decided that most technological advance is the fruit of methodical persistent investigation, as is recognized in 35 U.S.C. §103. The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure.

In the case of United Merchants and Manufacturers Incorporated versus Ladd (139 U.S.P.Q. 199), moreover, the District Court ruled that although from simplicity of device and with advantage of hindsight, one might offhandedly be of opinion that anyone should have been able to make invention after studying prior art, claims are allowed since none of the reference discloses or suggests the concept which is the crux of the invention.

In the case of Ex parte Fleischmann (157 U.S.P.Q. 155), the Patent Office Board of Appeals ruled that while it might be possible to select features from secondary references and

mechanically combine them with primary reference to arrive at applicant's claim combination, there is no basis for making such combination disclosed or suggested in references; only applicant's specification suggests any reasons for combining references; under 35 U.S.C. 103, that does not constitute a bar.

Finally, in the case of Meng and Driessen (181 U.S.P.Q. 94), the Court ruled that progress in crowded arts, usually made in small increments, is as important as it is in arts at the pioneer stage; constitution envisages and seeks progress in useful "arts," not just in those more esoteric or scientific.

In view thereof, and in view of the amendments made to the claims, specification, and the drawings, it is respectfully requested that the claims in the application be allowed and the case be passed to issue.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D. C. 20231, on 1-9-03

MAX FOGIEL
Name of applicant, assignee, or Registered Representative

Max Fogiel
Signature

1-9-03
Date of Signature

Respectfully submitted,

By: Max Fogiel

Max Fogiel
61 Ethel Road West
Piscataway, NJ 08854
Phone: (732) 819-8880

c:\documents\fogiel\amendents\adamex amendment 1 1-6-03

VERSION WITH MARKINGS TO SHOW THE CHANGES MADE

S/N 09/981,086

This object is attained in accordance with the present invention by the characteristics recited in the body of Claim 1. Advantageous further and advanced embodiments of the invention are addressed by Claims 2 through 10.

Claims 11 through 13 recite a method of manufacturing such a piston, and Claim 15 recites an advantageous way of attaching the piston to a piston rod.

The present invention has several advantages. Although the piston is simple, it can easily be employed to precisely vary the hydraulic impedances of both the compression phase and the suction phase. The tolerances involved in manufacturing the piston can accordingly easily be attained. The piston's characteristic curve can also be easily adjusted in both the compression and the suction phase. Finally, the piston can be produced simply and cost-effectively.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be specified with reference to the drawing, wherein Figures 1 through 4 are sections through different embodiments of a piston in accordance with the present invention and illustrate different approaches to its manufacture;

Figs 5 and 6 are top views of polygonal bolt heads and collars, respectively; Fig. 7 is a frontal view showing an embodiment to aid in positioning part of the piston

A piston 1 is conventionally mounted on one end of a piston rod 3 and travels back and forth inside a cylinder 2. Although the piston in the present embodiment is screwed onto the piston rod, other means of attachment are also possible.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

fastened together by burn-off butt welding for example, creating an outward-directed welding bead that fills depressions 31. Halves 26 and 27 and depressions 31 are relatively dimensioned to ensure that the bead will entirely occupy the depressions. Cup springs 8 and 9 can be tensioned by clamp connections 32 and 33, by welding, or by nuts 17 and 16.

To facilitate positioning and securing piston halves 12 and 13 in relation to collar 22 or heads 28 and 29, the surfaces of depressions 31 can be provided with knife-like radial or axial elevations 31a that dig into collar 22 or heads 28 and 29. With piston halves 12 and 13 appropriately oriented in relation to piston rod 3 and to bolt 11 or halves 26 and 27 accordingly, the arrangement will be stable both axially and radially no matter how the system is finally assembled. Heads 28 and 29 and collar 22 may have a polygonal section.

The piston halves 12 and 13 and bolt 11 in the two versions of the embodiment illustrated in Figure 4 can be fastened together in various ways. The bolts in both versions are composed of two halves 26 and 27 welded together inside piston halves 12 and 13. The bolt halves in the version represented in the left half of the figure are provided with collars 34 and 35 that, once the bolt halves have been connected, rest against the faces of the piston halves. All the components of body 10 are accordingly assembled together.

The mutually contacting surfaces of the piston halves 12 and 13 in the version represented in the right half of Figure 4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE MATTER OF:

ATTN.: APPLICATIONS DIVISION

APPLICANT: ADAMEK

FOR: PISTON FOR A HYDRAULIC SHOCK ABSORBER AND METHOD FOR MAKING THE SAME

Date: September 6, 2001

PRELIMINARY SIMULTANEOUS AMENDMENT

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

SIR:

Prior to examination of the present application, please amend as follows:

IN THE CLAIMS:

Change Claims 1 to 14 to read as follows:

1. A piston for a hydraulic dashpot, whereby the piston, comprising: a is mounted on one end of a piston rod (3), travels back and traveling forth inside a cylinder divided (2), which it divides into two chambers (4 & 5), and has a body (10) provided with axial channels (6 & 7), each of which can be opened and closed at the end by a one-way valve in the form of a cup spring or means; stack of cup springs (8 & 9), means for independently adjusting their tensions of said cup spring means for both the compression and the suction phases, characterized in that the said cup springs (8 & 9) rest against and means resting in alignment with the said body, said and aligned with said body; and the tensions is adjusted by being deforming the said body resiliently or plasticly against its a contact surface of said body for varying hydraulic impedances of said compression and suction phases; said piston having a characteristic curve adjustable in both compression and suction phases.

2. A piston as in Claim 1, characterized in that the body wherein said (10) is in several defined parts. comprises a plurality of

3. A piston as in Claim 2, characterized in that the body wherein said (10) is composed of a central bolt comprises (21) having ends with a continuous collar at each end; (22) and of two piston halves (12 & 13) that rest resting axially against and accommodate the collar at each end.

4. A piston as defined in Claim 2, characterized in that the body wherein said

(10) is composed of a central bolt (11) with two axially separated continuous collars, (34 & 35), the piston halves (12 & 13) positioned between them, said collars.

5. Piston as in Claim 2, characterized in that the body (10) is composed of a central bolt (11) with a continuous groove and comprises two piston halves, (12 & 13), whereby the said groove is engaged by two nose (36) members.

6. Piston as in Claim 3, characterized in that its halves (12 & 13) are sintered metal.

7. Piston as in Claim 1, characterized in that its means of applying tension are in the form of a screw-tight mechanism comprising nuts (17 & 18) that operate in conjunction with threads (15 & 16) extending around the bolt (11).

8. Piston as in Claim 1, characterized in that the surrounding surface of either the collar (34) or the heads (28 & 29) of the bolt halves (26 & 27) are not round but preferably polygonal and fit into matching recesses in the piston halves (12 & 13).

9. Piston as in Claim 1, characterized by round and/or radial and preferably knife-like elevations on the faces of the depressions (31) in the piston halves (12 & 13).

10. Piston as in Claim 1, characterized by mutually engaging elevations on and depressions in the inner adjacent faces of the piston halves (12 & 13).

11. Method of manufacturing a piston as in Claim 3, characterized in that the bolt (11) is produced by welding two halves (26 & 27) together, leaving a bead (36) that constitutes the collar (22).

a piston as defined in claim 3, wherein said bolts comprises

[the bolt (11) is produced from] two halves, [(26 & 27), each provided with a head] each of said bolt half having a head fastened

[(28 & 29), by welding or otherwise fastening the mutually contacting heads] [together] to the collar (23).

a piston as defined in claim 3, wherein said bolts compri

13. [Method of manufacturing a piston as in Claim 1, characterized in that] two [the] bolt halves [(26 & 27) are welded or otherwise fasten together the] piston halves [(12 & 13) that accommodate them.]

a piston as defined in claim 3, wherein said bolt

14. [Method of fastening a piston as in Claim 1 to a piston rod, characterized] [in that the bolt (11)] is welded to [the] said piston rod [(3) or to a washer (19) or shock-accommodating disk (25) mounted around the piston rod.]

New claims
15. washer - 14
16. shock absorbing disk
17.

REMARKS

Applicant has amended the claims to express them in more definite form to avoid multiple dependency.

A copy of the claims with markings to show the changes that have been made, is enclosed.

Respectfully submitted,

Max Fogiel

Max Fogiel
61 Ethel Road West
Piscataway, New Jersey 08854

Phone: (732) 819-8880

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231 on 10-16-01

EK759272997US
Express Mail No.

M. FOGIEL
Name of applicant, assignee or Registered Representative

Max Fogiel
Signature

10-16-01
Date of Signature

VERSION WITH MARKINGS TO SHOW THE CHANGES MADE

as-filed

Figures 1 through 4 are sections through different embodiments of a piston in accordance with the present invention and illustrate different approaches to its manufacture;

Figures 5 and 6 are top views of polygonal bolt heads and collars, respectively;

Figure 7 is a frontal view showing an embodiment to aid in positioning parts of the piston. --

before line 26: insert

-- DESCRIPTION OF THE PREFERRED EMBODIMENTS --

Page 5, lines 9-15: change these lines to read as follows:

-- To facilitate positioning and securing piston halves 12 and 13 in relation to collar 22 or heads 28 and 29, the surfaces of depressions 31 can be provided with knife-like radial or axial elevations 31a that dig into collar 22 or heads 28 and 29. With piston halves 12 and 13 appropriately oriented in relation to piston rod 3 and to bolt 11 or halves 26 and 27 accordingly, the arrangement will be stable both axially and radially no matter how the system is finally assembled. Heads 28 and 29 and collar 22 may have a polygonal section. --

IN THE CLAIMS:

Change claims 1 to 14 to read as follows:

-- 1. A piston for a hydraulic dashpot, comprising: a piston head mounted on one end of a piston rod traveling back and forth inside a cylinder divided into two chambers; [a body with] said piston head having

(B)

INSERT A

said piston head comprising a central bolt having a continuous collar; and two piston halves resting axially against the collar; said bolt being fixed to said collar; said collar having two faces abutted by said two piston halves; said piston halves having to be pushed over said bolt from opposite ends of said bolt in mounting said piston halves on said bolt so that said bolt is fastenable only thereafter to said piston rod.

axial channels, each of said channels being openable and closable at an end by a one-way valve in form of cup spring means; means for independently adjusting tensions of said cup spring means for both compression and suction phases, said cup spring means resting against said body and aligned with said body, said tensions being adjusted by deforming said body resiliently or plasticly against a contact surface of said body for varying hydraulic impedances of said compression and suction phases; said piston having a characteristic curve adjustable in both compression and suction phases.

2. A piston as defined in Claim 1, wherein said body comprises a plurality of parts.

3. A piston as defined in Claim 2, wherein said body comprises a central bolt having ends with a continuous collar at each end; and two piston halves resting axially against the collar at each end.

4. A piston as defined in Claim 2, wherein said body comprises a central bolt with two axially separated continuous collars, said piston having piston halves positioned between said collars.

5. A piston as defined in Claim 2, wherein said body comprises a central bolt with a continuous groove and two piston halves, said groove being engaged by two nose members.

6. A piston as defined in Claim 3, wherein said piston halves are of sintered metal.

7. A piston as defined in Claim 1, wherein said body for applying said tension comprises a screw-tight mechanism having

nuts operating in conjunction with threads extending around said bolt.

8. A piston as defined in Claim 1, wherein said collar and heads of said bolt have a polygonal surrounding surface fitting into matching recesses in said piston halves.

9. A piston as defined in Claim 1, including knife-like elevations on faces of depressions in said piston halves.

10. A piston as defined in Claim 1, including mutually engaging elevations and depressions in inner adjacent faces of said piston halves.

11. A piston as defined in Claim 1, wherein said bolt comprises two halves welded together and said collar comprises a bead left from said welding.

12. A piston as defined in Claim 1, wherein said bolt comprises two halves, each of said bolt half having a head fastened to the collar.

13. A piston as defined in Claim 1, wherein said bolt comprises two bolt halves fastened to said piston halves.

14. A piston as defined in Claim 1, wherein said bolt is welded to said piston rod.

15. A piston as defined in Claim 1, wherein said bolt is welded to a washer.

16. A piston as defined in Claim 1, wherein said bolt is welded to a shock-absorbing disk.

17. A piston for a hydraulic dashpot, comprising: a piston head mounted on one end of a piston rod traveling back and forth inside a cylinder divided into two chambers; said piston head having a body with axial channels, each of said channels being openable and closable at an end by a one-way valve in form of cup spring means; means for independently adjusting tensions of said cup spring means for both compression and suction phases, said cup spring means resting against said body and aligned with said piston head, said tensions being adjusted by deforming said body piston head resiliently or plasticly against a contact surface of said body piston head for varying hydraulic impedances of said compression and suction phases; said piston having a characteristic curve adjustable in both compression and suction phases; said body piston head comprising a plurality of parts; said piston head body comprising a central bolt having ends with a continuous collar at each end, two piston halves resting axially against the said collar at each end, said piston halves being of sintered metal, said body means for applying said tension and comprising a screw-tight mechanism having nuts operating in conjunction with threads extending around said bolt, said collar and heads of said bolt having a polygonal surrounding surface fitting into matching recesses in said piston halves, knife-like elevations on faces of depressions in said piston halves, mutually engaging elevations and depressions in inner adjacent faces of said piston halves, said bolt comprising two halves welded together and said collar comprising a bead left from said welding, said bolt being welded to said piston rod. --

VERSION WITH MARKINGS TO SHOW THE CHANGES MADE

S/N 09/981,086

Figures 1 through 4 are sections through different embodiments of a piston in accordance with the present invention and illustrate different approaches to its manufacture;

Figures 5 and 6 are top views of polygonal bolt heads and collars, respectively;

Figure 7 is a frontal view showing an embodiment to aid in positioning parts of the piston. --

before line 26: insert

-- DESCRIPTION OF THE PREFERRED EMBODIMENTS --

Page 5, lines 9-15: change these lines to read as follows:

-- To facilitate positioning and securing piston halves 12 and 13 in relation to collar 22 or heads 28 and 29, the surfaces of depressions 31 can be provided with knife-like radial or axial elevations 31a that dig into collar 22 or heads 28 and 29. With piston halves 12 and 13 appropriately oriented in relation to piston rod 3 and to bolt 11 or halves 26 and 27 accordingly, the arrangement will be stable both axially and radially no matter how the system is finally assembled. Heads 28 and 29 and collar 22 may have a polygonal section. --

IN THE CLAIMS:

Change claims 1 to 14 to read as follows:

-- 1. A piston for a hydraulic dashpot, comprising: a piston head mounted on one end of a piston rod traveling back and forth inside a cylinder divided into two chambers; [a body with] said piston head having

(B)

INSERT A

said piston head comprising a central bolt having a continuous collar; and two piston halves resting axially against the collar; said bolt being fixed to said collar; said collar having two faces abutted by said two piston halves; said piston halves having to be pushed over said bolt from opposite ends of said bolt in mounting said piston halves on said bolt so that said bolt is fastenable only thereafter to said piston rod.

axial channels, each of said channels being openable and closable at an end by a one-way valve in form of cup spring means; means for independently adjusting tensions of said cup spring means for both compression and suction phases, said cup spring means resting against said body and aligned with said body, said tensions being adjusted by deforming said body resiliently or plasticly against a contact surface of said body for varying hydraulic impedances of said compression and suction phases; said piston having a characteristic curve adjustable in both compression and suction phases.

2. A piston as defined in Claim 1, wherein said body comprises a plurality of parts.

3. A piston as defined in Claim 2, wherein said body comprises a central bolt having ends with a continuous collar at each end; and two piston halves resting axially against the collar at each end.

4. A piston as defined in Claim 2, wherein said body comprises a central bolt with two axially separated continuous collars, said piston having piston halves positioned between said collars.

5. A piston as defined in Claim 2, wherein said body comprises a central bolt with a continuous groove and two piston halves, said groove being engaged by two nose members.

6. A piston as defined in Claim 3, wherein said piston halves are of sintered metal.

7. A piston as defined in Claim 1, wherein said body for applying said tension comprises a screw-tight mechanism having

nuts operating in conjunction with threads extending around said bolt.

8. A piston as defined in Claim 1, wherein said collar and heads of said bolt have a polygonal surrounding surface fitting into matching recesses in said piston halves.

9. A piston as defined in Claim 1, including knife-like elevations on faces of depressions in said piston halves.

10. A piston as defined in Claim 1, including mutually engaging elevations and depressions in inner adjacent faces of said piston halves.

11. A piston as defined in Claim 1, wherein said bolt comprises two halves welded together and said collar comprises a bead left from said welding.

12. A piston as defined in Claim 1, wherein said bolt comprises two halves, each of said bolt half having a head fastened to the collar.

13. A piston as defined in Claim 1, wherein said bolt comprises two bolt halves fastened to said piston halves.

14. A piston as defined in Claim 1, wherein said bolt is welded to said piston rod.

15. A piston as defined in Claim 1, wherein said bolt is welded to a washer.

16. A piston as defined in Claim 1, wherein said bolt is welded to a shock-absorbing disk.

17. A piston for a hydraulic dashpot, comprising: a piston head mounted on one end of a piston rod traveling back and forth inside a cylinder divided into two chambers; said piston head having a body with axial channels, each of said channels being openable and closable at an end by a one-way valve in form of cup spring means; means for independently adjusting tensions of said cup spring means for both compression and suction phases, said cup spring means resting against said body and aligned with said piston head body, said tensions being adjusted by deforming said body piston head resiliently or plasticly against a contact surface of said body piston head for varying hydraulic impedances of said compression and suction phases; said piston having a characteristic curve adjustable in both compression and suction phases; said body piston head comprising a plurality of parts; said piston head body comprising a central bolt having ends with a continuous collar at each end, two piston halves resting axially against the said collar at each end, said piston halves being of sintered metal, said body means for applying said tension and comprising a screw-tight mechanism having nuts operating in conjunction with threads extending around said bolt, said collar and heads of said bolt having a polygonal surrounding surface fitting into matching recesses in said piston halves, knife-like elevations on faces of depressions in said piston halves, mutually engaging elevations and depressions in inner adjacent faces of said piston halves, said bolt comprising two halves welded together and said collar comprising a bead left from said welding, said bolt being welded to said piston rod. --